1046-11-1720   **Jonathan Webster*** (`jwebster@math.ucalgary.ca`), Univerity of Calgary: Dept of Math and Stats, 2500 University Dr. NW, Calgary, AB T2N 1N4, Canada. *Arithmetic Aspects of a Cubic Function Field in Characteristic Three.*

In this talk we present a preliminary investigation of cubic function fields in characteristic three. We choose a single parameter family of curves defined by $H(x, y) := y^3 + y^2 + F = 0$ where $F \in k[x]$ and k is a finite field with $\mathrm{char}(k) = 3$. We classify the splitting of the finite places and find the different exponent of the infinite place which allows us to calculate the genus for these curves. We also give algorithms for computing in the ideal class group (with restrictions on F). We consider these curves for their innate interest as well as applications to cryptography. (Received September 16, 2008)